

IN THE CLAIMS:

Claims 1 – 32 (canceled)

Claim 33 (re-presented - previously claim 8) A digital subscriber line communicating system for communicating between a transmitting side and a receiving side through a communication line, comprising:

a sliding window generating unit for generating a sliding window based on a timing signal representing a periodical noise duration; and

a sliding window transmitting unit for transmitting a modulated symbol according to said sliding window through said communication line to said receiving side;

wherein said transmitting side is a central office and said receiving side is a remote terminal;

said central office comprising:

a timing signal generating unit for generating said timing signal synchronized with a transmission system which interfaces said central office and said remote terminal;

said sliding window generating unit being operatively connected to said timing signal generating unit, and said sliding window being a downstream sliding window indicating the phase of a noise condition of said remote terminal; and

said sliding window transmitting unit transmitting modulated symbols according to said downstream sliding window through said communication line to said remote terminal; and

said remote terminal comprising:

a sliding window receiving unit for receiving modulated symbols according to said downstream sliding window from said central office;

said downstream sliding window indicating cross-talk durations due to TCM ISDN transmission at the remote terminal;

wherein a first cross-talk duration is within a prior half of each cycle of said timing signal, and a second cross talk determined with a near end cross-talk duration at the remote terminal, is within a latter half of each cycle of said timing signal,

an inside of said downstream sliding window being formed within said first cross-talk duration;

~~The digital subscriber line communicating system according to claim 7, and wherein,~~
during timing recover training between said central office and said remote terminal, an inside symbol of said downstream sliding window is formed by a first kind of signal, and an outside symbol of said downstream sliding window is formed by a second kind of signal, said first kind of signal and said second kind of signal being obtained by modulating a carrier signal but being different in phase by a predetermined angle.

Claim 34 ~~(re-presented - previously claim 9)~~ A digital subscriber line communicating system for communicating between a transmitting side and a receiving side through a communication line, comprising:

a sliding window generating unit for generating a sliding window based on a timing signal representing a periodical noise duration; and

a sliding window transmitting unit for transmitting a modulated symbol according to said sliding window through said communication line to said receiving side;

wherein said transmitting side is a central office and said receiving side is a remote terminal;

said central office comprising:

a timing signal generating unit for generating said timing signal synchronized with a transmission system which interfaces said central office and said remote terminal;

said sliding window generating unit being operatively connected to said timing signal generating unit, and said sliding window being a downstream sliding window indicating the phase of a noise condition of said remote terminal; and

said sliding window transmitting unit transmitting modulated symbols according to said downstream sliding window through said communication line to said remote terminal; and

said remote terminal comprising:

a sliding window receiving unit for receiving modulated symbols according to said downstream sliding window from said central office;

said downstream sliding window indicating cross-talk durations due to TCM ISDN transmission at the remote terminal;

wherein said downstream sliding window is generated in such a way that an inside symbol of said downstream sliding window is received by said remote terminal in a first cross-talk duration determined with a far end cross-talk duration at said remote terminal;

The digital subscriber line communicating system according to claim 6, and wherein
when ~~the~~ a first modulated symbol is synchronized with the head of one cycle of said timing signal, said central office comprises a duration discriminating unit for discriminating whether an N-th symbol belongs to an inside or an outside of said downstream sliding window.

3
Claim 25 (re-presented - previously claim 14) A digital subscriber line communicating

system for communicating between a transmitting side and a receiving side through a
communication line, comprising:

a sliding window generating unit for generating a sliding window based on a timing
signal representing a periodical noise duration; and

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a sliding window transmitting unit for transmitting a modulated symbol according to said
sliding window through said communication line to said receiving side;

wherein said transmitting side is a remote terminal and said receiving side is a central
office, said remote terminal comprising:

a timing signal receiving unit for receiving a timing phase via a received modulated
symbol according to a downstream sliding window from said central office, said timing signal
being synchronized with a transmission system which interfaces said central office and said
remote terminal;

said sliding window generating unit being operatively connected to said timing signal
receiving unit, and said sliding window being an upstream sliding window indicating a phase of
noise condition of said central office; and

a sliding window transmitting unit for transmitting modulated symbols according to said
upstream sliding window through said communication line to said central office;

said upstream sliding window indicating a cross-talk duration due to TCM ISDN
transmission at said central office;

wherein said upstream sliding window is generated in such a way that an inside symbol
of said upstream sliding window is received by said central office in a third cross-talk duration
determined with a far end cross-talk duration at said central office;

~~The digital subscriber line communicating system according to claim 12, and wherein~~
when ~~the~~ a first modulated symbol is synchronized with the head of one cycle of said timing
signal, said remote terminal comprises a duration discriminating unit for discriminating whether
an N-th modulated symbol belongs to an inside or an outside of said upstream sliding window.

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Claim 36 (re-presented - previously claim 19) A digital subscriber line communicating
system for communicating between a transmitting side and a receiving side through a
communication line, comprising:

a sliding window generating unit for generating a sliding window based on a timing
signal representing a periodical noise duration; and

a sliding window transmitting unit for transmitting a modulated symbol according to said
sliding window through said communication line to said receiving side;

wherein the number of bits to be transmitted per a carrier signal corresponds to a signal to
noise (S/N) ratio for said carrier signal, only the modulated symbols received completely inside
of a near end cross-talk duration at the receiving side being used to measure a NEXT duration
S/N, and only the inside modulated symbols of the sliding window at the receiving side being
used to measure a FEXT duration S/N;

~~The digital subscriber line communicating system according to claim 16, and further~~
comprising a modified sliding window bitmap transmission system for transmitting data symbols
in both inside of and outside of said sliding window, and the outside data symbols are
transmitted with transmitting capacity determined by the a S/N measurement in the a NEXT
duration at the receiving side.

Claim 37 (re-presented - previously claim 22) A digital subscriber line communicating system for communicating between a transmitting side and a receiving side through a communication line, comprising:

a sliding window generating unit for generating a sliding window based on a timing signal representing a periodical noise duration; and

a sliding window transmitting unit for transmitting a modulated symbol according to said sliding window through said communication line to said receiving side;

wherein the number of bits to be transmitted per a carrier signal corresponds to a signal to noise (S/N) ratio for said carrier signal, only modulated symbols received completely inside of a near end cross-talk duration at the receiving side being used to measure a NEXT duration S/N, and only inside modulated symbols of the sliding window at the receiving side being used to measure a FEXT duration S/N;

further comprising a sliding window bitmap transmission system for transmitting data symbols only inside of said sliding window with transmitting capacity determined by an S/N measurement inside of said sliding window at the receiving side;

wherein a first predetermined number of super frames, each of which is composed of a second predetermined number of modulated symbols and a synchronizing symbol, constitute a single unit, said single unit being synchronized with an integer multiple of one cycle duration of said timing signal, and a synchronizing symbol in said single unit (inverse synchronizing symbol) is made different from other synchronizing symbols in order to maintain said single unit to be synchronized between said central office and said remote terminal, said inverse synchronizing symbol being in an Nth super frame of said super frames and received in a FEXT duration at the receiving side;

~~The digital subscriber line communicating system according to claim 21, wherein said N-th super frame is a 4-th super frame for downstream and a first super frame for upstream, and said first predetermined number of super frames is 5, and said second predetermined number of modulated symbols is 68.~~

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Claim 38 (re-presented - previously claim 27) A transceiver in a central office

connected through a communication line to a remote terminal, said transceiver comprising:

a timing signal generating unit for generating said timing signal representing a periodical noise duration;

a sliding window generating unit, operatively connected to said timing signal generating unit, for generating a downstream sliding window indicating the phase of a noise condition of said remote terminal; and

a sliding window transmitting unit for transmitting modulated symbols according to said downstream sliding window through said communication line to said remote terminal;

wherein said downstream sliding window is generated in such a way that an inside symbol of said downstream sliding window is received by said remote terminal in a far end cross-talk duration at said remote terminal;

wherein a first cross-talk duration is within a prior half of each cycle of said timing signal, and a second cross-talk duration determined with a near end cross-talk duration at the remote terminal is within a latter half of each cycle of said timing signal,

an inside of said downstream sliding window being formed within said first cross-talk duration;

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The transceiver according to claim 26, wherein, during timing recover training between said central office and said remote terminal, an inside symbol of said downstream sliding window is formed by a first kind of signal, and an outside symbol of said downstream sliding window is formed by a second kind of signal, said first kind of signal and said second kind of signal each being obtained by modulating a carrier signal but being different in phase by a predetermined angle.
